

SUBJECT: Preliminary Biological Assessment of the proposed Kilo Thin timber sale: potential impacts to East Thomas Creek northern spotted owl site.

TO: Jerry Chetock

FROM: Rod Krahmer

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Executive Summary

The Oregon Department of Forestry (ODF) has proposed the Kilo Thin timber sale in the Santiam State Forest during Fiscal Year (FY) 2006. The Kilo Thin timber sale consists of two units (Area 1 = 119 acres and Area 2 = 71 acres (Figure 1)). The proposed Kilo Thin timber sale is located near the East Thomas Creek northern spotted owls (NSO), a threatened species. The Kilo Thin timber sale will impact 0 acres of suitable NSO habitat, and 190 acres of non-suitable NSO habitat. The proposed Kilo Thin timber poses a “low” risk to the continued viability of the East Thomas Creek NSO site, and is consistent with ODF’s legal and policy mandates to maintain existing NSO nest sites on ODF lands.

Purpose

The ODF has proposed the Kilo Thin timber sale in the Santiam State Forest located in Linn County, Oregon. The Kilo Thin timber sale is in the FY 2006 operations plan of the North Cascade District. Since the Kilo Thin timber sale is located near the East Thomas NSO site, a Biological Assessment (BA) is needed to evaluate the potential biological effects of the proposed timber sale to the owl site. The NSO is a state and federally listed “threatened” species by the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS), respectively.

Policy Direction

The Northwest Oregon State Forests Management Plan provides management direction for all Board of Forestry Lands and Common School Forest Lands in northwest Oregon. The resource management goals and strategies are intended to achieve the greatest permanent value through a system of integrated resource management. This plan is guided by legal and policy mandates. The ODF’s management activities are conducted in compliance with all state and federal environmental laws, including the state and federal Endangered Species Act (ESA), respectively. “Take” of threatened or endangered species is prohibited under Section 9 of the federal ESA. The term “take” means to

harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Such acts may include significant habitat modifications or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. The policies and procedures for lands managed by the ODF in northwest Oregon are to avoid “take” of NSO. “Take” avoidance is accomplished on lands managed by the ODF in the North Cascade District through the application of the rescinded federal incidental take guidelines (USFWS 1990).

The USFWS recommends the following stepwise approach to avoid or reduce the risk of incidental take in the Oregon Cascades province:

1. Conduct NSO surveys during the breeding season and prior to any harvest activity according to protocols endorsed by the USFWS;
2. Avoid any harvest activity which results in less than 70 acres of the best available suitable NSO habitat encompassing the nest site and/or activity center of a pair of spotted owls;
3. Avoid any harvest activity which results in less than 500 acres of suitable NSO habitat within a 0.7 mile radius (1000 acres) of a nest site and/or activity center; and
4. Avoid any harvest activity which results in less than 1182 acres of suitable NOS habitat within a 1.2 mile radius (2955 acres) of nest site and/or activity center.

Survey Information

Kingfisher Ecological, Inc., conducted surveys for northern spotted owls in all potential owl habitat in and around planned timber sales and known owls sites in the ODF Cascade District. Potential spotted owl habitat was surveyed in accordance with the protocol for surveying proposed management activities that may impact NSO (USFWS 1992). The East Thomas Creek northern spotted owl site was established in 2003. A male NSO was heard three times at night in 2003, and the site was designated status “unknown” in 2003 (Kingfisher Ecological, Inc. 2003). A pair of NSO attempted to nest at this site in 2004, but failed to produce young. The nest tree is located on federal land managed by the Bureau of Land Management (BLM). Site status was upgraded to “pair” in 2004, and the Activity Center was placed at the nest tree. Banding status is “unknown” for both members of the pair (Kingfisher Ecological, Inc. 2004).

Habitat Information

Current stand condition. Area 1 consists of stands ranging between 40-70 years old. The overstory consists of Douglas-fir, western hemlock and the occasional big leaf maple. The stands in Area 1 have the following average stand characteristics: diameter breast height (DBH)=12-13, basal area (BA)=156-201, trees per acre (TPA)=191-225, stand

density index (SDI)=44-55. The understory consists of Oregon grape, salal, vine maple and ferns. Within Area 1, there is 3200 cubic feet of down wood in all decay classes per acre, although there is less than 20 cubic feet of sound down wood per acre, and two snags per acre. Area 2 consists of a 27 year old stand dominated by Douglas-fir that was precommercially thinned in 1991. The stand in Area 2 has the following average stand characteristics: DBH=12, BA=174, TPA=235, and SDI=52. Within Area 2, there is 770 cubic feet of down wood in all decay classes per acre, although there is less than 20 cubic feet of sound down wood per acre, and 1 snag per acre.

Desired stand condition. The desired future condition for Area 1 is for a general stand condition. The anticipated pathway for Area 1 is a moderate partial cut which will improve the growing condition of the residual trees. The desired future condition for Area 2 is older forest structure. The anticipated pathway for Area 2 is also a moderate partial cut, and in approximately 15 years will be evaluated for another partial cut. Additionally, snags and downed wood will be evaluated at the next entry to determine if a habitat development project is needed. The stands in Area 1 and Area 2 have the potential to move toward complex structure the quickest with density management.

Sale Prescription

A moderate partial cut will be conducted in both Area 1 and Area 2. Area 1 is 119 acres and Area 2 is 71 acres, respectively (Figure 1). The residual stand in both areas will consist of the largest and best trees. Additionally, all western hemlock will be reserved from harvest in Area 2. After harvesting, Area 1 is expected to have the following average stand characteristics: DBH=15, BA=137, TPA=102, SDI=30. After harvesting, Area 2 is also expected to have similar average stand characteristics, including DBH=13, BA=100, TPA=112, and SDI=30. Existing snags in both areas will be retained that do not pose a safety hazard. No snags or downed wood will be added. The proposed timber sale area has good ridge-top access to facilitate cable-yarding operations. Landings will be utilized along the Tom Rock Ridge Road, TR 400 and 1000 Line roads for cable logging and settings. Minor spur road construction less than 500 feet may be needed. No other road construction will be necessary.

Impact Assessment

For the purposes of ESA compliance, the USFWS (1990) describes suitable NSO habitat as stands that exhibit the following characteristics:

- moderate to high canopy closure;
- a multi-layered, multi-species canopy dominated by large overstory trees
- a high incidence of large trees with large cavities, broken tops, and other indications of decadence;
- numerous large snags;
- heavy accumulations of logs and other woody debris on the forest floor; and
- considerable open space within and beneath the canopy.

These attributes are usually found in mature and old conifer forests, but are sometimes found in younger forests, especially those that contain remnant large trees or patches of large trees from earlier stands. It is important to note that the age of forests is not as important a factor in determining habitat suitability as are vegetational and structural components (USFWS 1990).

In ODF's experience, NSO occur in some forest stands that are less than 80 years old. Several studies have investigated NSO home range and habitat use in young forests on ODF lands in western Oregon (Islam et al. 1997, Anthony et al. 2000, Tappeiner et al. 2000, Glenn et al. 2004). Islam et al. (1997) investigated the relationship between demography of NSO and habitat characteristics at the landscape level on ODF lands, and reported that the minimum diameter of the dominant conifer trees in stands of NSO habitat should be at least 18 inches and stands should also contain about three size classes and have variation in stem density within the stand. Anthony et al. examined habitat in owl home ranges on ODF lands in the Northern Coast Range (NCR) of Oregon and Elliott State Forest (ESF) in south-central Oregon Coast Range. Individual owls in the NCR study area selected mature forest and hardwood forest, and avoided young and pole stands. At ESF, owls selected mixed-age conifer, mature conifer, old conifer, and hardwood forest, and avoided young and pole. Owls were also found close to conifer-hardwood ecotones more often than expected in both study areas. At NCR, Tappeiner et al. 2000 reported that nest and forage sites had larger trees, lower tree densities, and more hardwood stems than low use sites, and that higher owl success (combination of site occupancy and reproduction indices) was positively correlated with average tree size and negatively correlated with tree density. Glenn et al. 2004 reported that individual owls on their study areas in the NCR and ESF varied greatly in habitat use patterns and appeared to be using different strategies for surviving in younger forests. In younger, or less structurally diverse landscapes, the use of hardwoods was more frequent than in landscapes dominated by older conifer forest. Hardwoods may contribute structural diversity and prey base than are otherwise in short supply in relatively young, homogenous landscapes lacking remnant old-forest structures.

Northern spotted owl habitat determinations within 1.2 miles of the East Thomas northern spotted owl nest site were made by ODF wildlife biologists and foresters using results of NSO research on ODF lands, information about forest stand age and average stand diameter on ODF lands from the department's computerized forest inventory system databases (Figure 2), aerial photo interpretation, and ground-truthing. Based upon these findings, NSO habitat (Figure 3) for this assessment was defined as:

- Forest stands greater than 18 inches average DBH provided suitable habitat for NSO.
- Forest stands between 12-17 inches average DBH provided suitable or non-suitable habitat for NSO depending on the presence/absence of structural characteristics needed to accommodate owls. ODF biologists, using professional judgment, determined the suitability of habitat for these stands by considering stand density, structural diversity, and tree diversity. Extremely dense stands may preclude spotted owl use because of the difficulty for owls to maneuver through

the stand. Stands lacking in vertical and horizontal diversity and tree species diversity may provide poor habitat for prey species and/or few perching/hunting opportunities for spotted owls.

- Forest stands less than 12 inches average DBH provided non-suitable habitat for NSO.

The forest stands in Area 1 and Area 2 of the proposed timber sale are young, extremely dense, and lack structural diversity. Forest stands deficient in structural diversity provide few nesting, roosting and foraging opportunities. Extremely dense stands may also preclude NSO use because of the difficulty for owls to maneuver through the stand. Therefore, forest stands in Area 1 and Area 2 of the proposed timber sale were determined to be non-suitable NSO habitat.

ArcView Geographic Information Systems (GIS) were used to determine that there are 400 acres of suitable owl habitat within 0.7 miles, and 1102 acres of suitable owl habitat within 1.2 miles of the East Thomas Creek NSO nest site (Table 1). Total acres of suitable spotted owl habitat within 0.7 miles and 1.2 miles of the East Thomas Creek NSO nest site are below USFWS recommendations to avoid incidental “take” under the federal ESA. However, the proposed Kilo Thin timber sale will impact 0 acres of suitable owl habitat and will modify 190 acres of existing non-suitable owl habitat within 1.2 miles of the East Thomas Creek NSO nest site (Figure 3).

Table 1. Acres of suitable and non-suitable northern spotted owl (NSO) habitat within 0.7 mile and 1.2 mile radii of the East Thomas Creek NSO nest site.

<u>Landowner</u>	<u>0.7 mile radius</u>		<u>1.2 mile radius</u>	
	<u>Suitable</u>	<u>Non-suitable</u>	<u>Suitable</u>	<u>Non-suitable</u>
ODF	142	89	545	330
BLM	209	82	420	273
Other	49	413	137	1198
TOTAL	400	584	1102	1801

Risk Assessment

The proposed Kilo Thin timber sale will avoid any timber harvest activity which results in less than 70 acres of the best available suitable owl habitat encompassing the nest site, and will avoid any timber harvest activity in existing suitable spotted owl habitat. The proposed timber sale will result in no reduction of suitable owl habitat within 0.7 miles or 1.2 miles of the East Thomas Creek NSO nesting site. Therefore, the proposed Kilo Thin timber sale poses a “low” risk to the continued viability of the East Thomas Creek NSO site.

The proposed action is consistent with ODF's legal and policy mandates to maintain existing NSO nest sites on ODF lands. In addition, the proposed action is also consistent with management recommendations provided by several researchers investigating NSO on ODF lands. Anthony et al. 2000 recommended that habitat for NSO may be enhanced or created through active management, and suggested that carefully designed thinning operations developed after detailed site evaluations may accelerate the development of stands into forests with structural attributes more likely to accommodate NSO. Tappeiner et al. 2000 reported that low stand density, whether achieved naturally or created through management appeared to be important in the formation of stand structural characteristics associated with NSO use on ODF lands in the NCR and ESF. Glenn et al. 2004 recommended that timber harvest be avoided in NSO core areas.

Consultation with ODFW

Comments to be provided by Charlie Bruce

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C: Gregg Cline, Mehama
Howard Strobel, Mehama
Jodi Kroon, Mehama
Clint Smith, Tillamook
Mitch Taylor, Forest Grove
Mike Bordelon, Forest Grove
Nancy Hirsch, Salem
Bernie Bochsler, Salem
Jane Hope, Salem
Marcia Humes, Salem
Charlie Bruce, ODFW, Salem